We claim:

1. A vector for the systemic delivery of a virus to a target cell within a host animal, comprising a complex of a cell-targeting ligand, a liposome and said virus.

2. The vector according to claim 1, wherein said virus comprises a therapeutic nucleic acid.

3. The vector according to claim 1, wherein said virus is an adenovirus or a retrovirus.

4. The vector according to claim 1 wherein said virus is a recombinant virus.

5. The vector according to claim 1, wherein the vector encodes (a) a protein or (b) an antisense oligonucleotide.

6. The vector according to claim 2, wherein the nucleic acid encodes wild-type p53.

7. The vector according to claim 4, wherein the recombinant virus encodes wild-type p53.

8. The vector according to claim 1, wherein the cell-targeting ligand is a tumor cell targeting ligand.

9. The vector according to claim 1, wherein the cell-targeting ligand is folate or transferrin.

10. The vector according to claim 9, wherein the cell-targeting ligand is folate.

11. The vector according to claim 9, wherein the cell-targeting ligand is transferrin.

12. The vector according to claim 1, wherein the liposome is a cationic liposome comprising a cationic lipid and a neutral or helper lipid.

13. A vector for the systemic delivery of a therapeutic or diagnostic agent to a target cell within a host animal, comprising a complex of a cell-targeting ligand, a liposome and said agent, wherein the vector has a mean diameter of less than about 100 nm.

14. The vector according to claim 13 having a mean diameter of about 30 to 75 nm.

15. The vector according to claim 13 having a mean diameter of about 50 nm.

16. The vector according to claim 13 wherein said agent is a nucleic acid.

17. The vector according to claim 13 wherein said agent encodes (a) a protein or a (b) an antisense oligonucleotide.

18. The vector according to claim 13 wherein said agent is a nucleic acid encoding wild-type p53.

19. The vector according to claim 13 wherein said ligand is a tumor cell targeting ligand.

20. The vector according to claim 13 wherein said ligand is folate or transferrin.

21. The vector according to claim 13 wherein said ligand is folate.

22. The vector according to claim 13 wherein said ligand is transferrin.

23. The vector according to claim 13 wherein the liposome is a cationic liposome comprising a cationic lipid and a neutral or helper lipid.

24. The vector according to claim 16 wherein said liposome and said nucleic acid are present at a ratio ranging from 0.1-50 nanomoles liposome per 1.0 µg nucleic acid.

25. The vector according to claim 24 wherein said ratio ranges from 1.0-24 nanomole liposome per 1.0 µg nucleic acid.

26. The vector according to claim 24 wherein said ratio ranges from 6-16 nanomoles liposome per 1.0 µg nucleic acid.

27. The vector according to claim 13 wherein said vector has an acentric structure.

28. The vector according to claim 27 wherein said vector has a solid core.

29. A vector for delivering *in vivo* a therapeutically effective nucleic acid molecule to a tumor-bearing animal, the vector consisting essentially of a complex of a cell-targeting ligand selected from the group consisting of folate and transferrin, a cationic liposome and a nucleic acid molecule, wherein said vector comprises a virus.

30. The vector of claim 30 wherein said nucleic acid molecule encodes wild type p53.

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31. A vector for delivering *in vivo* a therapeutically effective nucleic acid molecule to a tumor-bearing animal, the vector consisting essentially of a complex of a cell-targeting ligand selected from the group consisting of folate and transferrin, a cationic liposome and a nucleic acid molecule, wherein said vector has a mean diameter of less than about 100 nm.

32. The vector of claim 31 wherein said nucleic acid molecule encodes wild type p53.

33. The vector of claim 31 wherein said liposome and said nucleic acid molecule are in a ratio of 0.1-50 nanomole liposome per 1.0 µg nucleic acid.

34. The vector of claim 31 wherein said liposome and said nucleic acid molecule are in a ratio of 1.0-24 nanomole liposome per 1.0 µg nucleic acid.

35. The vector of claim 31 wherein said liposome and said nucleic acid molecule are in a ratio of 6-16 nanomole liposome per 1.0 µg nucleic acid.

36. The vector of claim 31 wherein said vector has an acentric structure.

37. The vector of claim 36 wherein said vector has a solid core.

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38. A pharmaceutical composition comprising a vector according to claim 29 or 31 in a pharmaceutically acceptable carrier.

39. A method for providing a therapeutic agent to an animal in need thereof, comprising administering to said animal a therapeutically effective amount of a complex comprising a cell-targeting ligand, a cationic liposome and said therapeutic agent, wherein said vector comprises a virus.

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40. A method for providing a therapeutic agent to an animal in need thereof, comprising administering to said animal a therapeutically effective amount of a complex comprising a cell-targeting ligand, a cationic liposome and said therapeutic agent, wherein said vector has a mean diameter of less than about 100 nm.

41. The method of claim 40 wherein said agent is a nucleic acid.

42. The method of claim 41 wherein said liposome and said nucleic acid are present at a ratio ranging from 0.1-50 nanomole liposome per 1.0 µg nucleic acid.

43. The method of claim 41 wherein said liposome and said nucleic acid are present at a ratio ranging from 1-24 nanomole liposome per 1.0 µg nucleic acid.

44. The method of claim 41 wherein said liposome and said nucleic acid are present at a ratio ranging from 6-16 nanomole liposome per 1.0 µg nucleic acid.

45. The method of claim 40 wherein said complex has an acentric structure.

46. The method of claim 45 wherein said complex has a solid core.

47. The method according to claim 39 or 40, wherein said vector is administered systemically.

48. The method according to claim 39 or 40, wherein said vector is administered intravenously.

SUB A1) 49. The method according to claim 39 or 40, wherein the cell-targeting ligand is folate or transferrin, the liposome is a cationic liposome and the therapeutic agent is a nucleic acid encoding wild-type p53.

50. The method according to claim 39 or 40 wherein the vector is administered in a pharmaceutically acceptable composition comprising a pharmaceutically acceptable vehicle.

51. A therapeutic method for the treatment or amelioration of cancer in a warm blooded animal, comprising administering to said animal a complex comprising a cancer cell targeting ligand, a liposome and a therapeutic nucleic acid, wherein said complex comprises a virus.

SUB A1) 52. A therapeutic method for the treatment or amelioration of cancer in a warm blooded animal, comprising administering to said animal a complex comprising a cancer cell targeting ligand, a liposome and a therapeutic nucleic acid, wherein said complex has a mean diameter of less than about 100 nm.

53. The method of claim 52 wherein said liposome and said nucleic acid are present at a ratio ranging from 0.1-50 nanomole liposome per 1.0 µg nucleic acid.

54. The method of claim 53 wherein said liposome and said nucleic acid are present at a ratio ranging from 1-24 nanomole liposome per 1.0 µg nucleic acid.

55. The method of claim 53 wherein said liposome and said nucleic acid are present at a ratio ranging from 6-16 nanomole liposome per 1.0 µg nucleic acid.

56. The method of claim 52 wherein said complex has an acentric structure.

57. The method of claim 56 wherein said complex has a solid core.

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58. The therapeutic method according to claim 51 or 52 wherein said complex is comprised of a cell-targeting ligand selected from the group consisting of folate and transferrin, a cationic liposome and a nucleic acid encoding wild-type p53.

59. The therapeutic method according to claim 58 wherein said complex is systemically administered to a cancer-bearing warm blooded animal.

60. The therapeutic method according to claim 58, wherein said complex is intravenously administered to a cancer-bearing warm blooded animal.

61. The therapeutic method according to claim 58, wherein said complex is intratumorally administered to a cancer-bearing warm blooded animal.

62. The therapeutic method according to claim 58, further comprising administering an anti-cancer chemotherapeutic agent or an anti-cancer radiotherapy to said animal.

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63. A method for preparing complexes smaller than 100 nm in diameter wherein said complexes comprise a liposome comprising lipids, a ligand and a nucleic acid, said method comprising the steps of:

a) mixing said ligand with said lipids to form a liposome:ligand complex;

b) mixing said liposome:ligand complex and said nucleic acid at a ratio of from 0.1-50 nanomoles liposome per 1.0 µg nucleic acid to form a liposome:ligand:nucleic acid complex; and

SUB A1 CONT) c) rocking said liposome:ligand:nucleic acid complex.

64. The method of claim 63 wherein said ratio is from 1-24 nanomoles liposome per 1.0 µg nucleic acid.

65. The method of claim 63 wherein said ratio is from 6-16 nanomoles liposome per 1.0 µg nucleic acid.

66. The method of claim 63 wherein said lipids comprise a neutral lipid selected from the group consisting of dioleoylphosphatidylethanolamine and cholesterol.

SUB A1) 67. The method of claim 63 wherein said lipids comprise a cationic lipid selected from the group consisting of dioleoyltrimethylammonium-propane and dimethyl dioctadecylammonium bromide.

68. The method of claim 63 wherein said ligand is folate or transferrin.

SUB A1) 69. The method of claim 63 wherein said liposome:ligand complex of step (a) is incubated with shaking for 5-15 minutes before performing step (b).

70. The method of claim 63 wherein step (c) is performed for 10-30 minutes.